

1 Serial No. 10/658,436

January 12, 2005

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DRAWINGS

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N/A.

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3 **REMARKS**

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6 The Examiner's careful attention to this application is sincerely appreciated.

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8 Applicant has amended the Specification as requested by the Examiner,
9 including inserting reference to the parent application.

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11 Applicant canceled Claim 1 and inserted new Claims 2 to 6 to clarify the
12 invention.

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15 The Problem

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17 When an evaporative cooling unit of the type described in U.S. Patent Nos.
18 4,443,387, 4,693,852, and 6,637,729 is downsized, the helical flow of air that travels
19 through the housing of the unit and out the bottom of the unit does **not** tend to move
20 outwardly after it exits the bottom of the unit. This is detrimental to the usefulness of the
21 unit because, as a result, the unit only directs air downwardly toward a relatively small
22 area. Specification, p. 28, lines 3 to 22.

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1 The Invention

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3 The evaporative cooling unit of the invention overcomes the problem set forth
4 above. The cooling unit of the invention includes a housing, vanes mounted in the
5 housing, a fan that directs air into the housing, and a **transition zone** beneath the housing.
6 The housing and vanes are configured such that air travels through the housing along a
7 **helical path**. When, however, the **air enters the transition zone, it travels along linear,**
8 **tangential, radial lines 104, 104A, 104B, 104C** as indicated in Fig. 10. The outward **linear**
9 direction and travel of the air enables the air to expand outwardly as the air exits the
10 evaporative cooling unit.

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12 The Prior Art

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14 The various *Gordon references* (U.S. Nos. 4,443,387, 4,693,852, 6,637,729)
15 describe apparatus in which air flows through the apparatus along an **arcuate helical path**
16 of travel and **continues along an arcuate helical path as the air exits the housing**.
17 This arcuate helical path is, for example, indicated in Fig. 1 of U.S. Patent No. 4,693,852
18 by arrow C:

19
20 *"In Fig. 1 arrow C indicates the downward expanding spiral path of travel ..."*

21
22 *Col. 4, lines 45, 46.*

23
24 One principal object of the invention is to **avoid** the continuation of an arcuate
25 helical path of travel when the air is exiting the housing and to instead produce a **linear**

1 radial path of travel as air travels through the transition zone beneath the apparatus
2 housing. A helical path of travel is not believed to generate enough outward "push" to
3 enable air to expand outwardly when it exits a smaller sized housing. Arriving at this
4 conclusion and developing apparatus that encourages **linear** radial tangential travel
5 through the transition zone required a considerable expenditure of time and effort on behalf
6 of the inventors. Various construction features utilized to achieve the linear travel of air are
7 discussed at pages 29 to 32 of the Specification and are inserted in new Claims 2 to 6.
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10 The *Kullen reference* (U.S. 4,678,410) describes a hair dryer and the *Smith*
11 *reference* (2,615,301) describes a centrifugal diffuser used to convert a stream of gas from
12 a high velocity/low pressure stream to a low velocity/high pressure stream.
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15 Accordingly, Applicant respectfully submits that the invention as now claimed is
16 neither anticipated under 35 U.S.C §102 nor rendered obvious under 35 U.S.C §103 by
17 the references of record.
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If the Examiner finds merits in the foregoing remarks and amendments, it is believed the application is condition for allowance, and such action is respectfully solicited.

Respectfully submitted,

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